

Discovery of the Eurasian carabid beetle species, *Carabus granulatus* Linnaeus (Coleoptera: Carabidae: Carabini), in the Haida Gwaii (Queen Charlotte Islands) of British Columbia, Canada.

David H. Kavanaugh

*Department of Entomology, California Academy of Sciences, 55 Concourse Drive,
 San Francisco, CA 94118, USA; Email: dkavanaugh@calacademy.org*

The European carabid beetle species, *Carabus granulatus* Linnaeus, is recorded for the first time from the Haida Gwaii (Queen Charlotte Islands) of British Columbia, Canada. This species appears to be well established on the southeast coast of Graham Island and can be expected to spread to other parts of that island with habitat disturbance and other human activities.

KEYWORDS: Carabidae, Carabini, *Carabus granulatus* Linnaeus, introduced species, Pacific Northwest fauna, Haida Gwaii, Queen Charlotte Islands.

Carabus granulatus Linnaeus (1758:413), a species native to Eurasia, where it ranges from western Europe to eastern Siberia and Japan, has been introduced inadvertently onto both coasts of North America (Lindroth 1957). Hatch (1933) reported the earliest known West Coast records, from the Seattle, Washington area, beginning in 1924. According to Lindroth (1961), the first record for British Columbia was from Vancouver (Point Grey) in 1926, and, subsequently, the species became more widely distributed in southern portions of that province. In 1992, when I published my treatment (Kavanaugh 1992) of the carabid beetle fauna of the Queen Charlotte Islands, now known as the Haida Gwaii, *C. granulatus* was unknown from that archipelago, despite an intensive collecting effort there in the 1980s and study of all known carabid specimens from the region preserved in North American collections at that time.

In July, 2009, I had the opportunity to revisit the Haida Gwaii for the first time since the 1980s and to resample some of my previous collecting sites. While collecting at about 10:00 pm on the night of 12 July, 10 kilometers north of Skidegate village on the east coast of Graham Island, I was surprised to encounter two adults of *C. granulatus*. Both were found running over stones on the exposed banks of Chinukundl Creek, just above the bridge at Highway 16. Over the next several days, up to and including 22 July, I encountered a total of 10 more adults and one third instar larva of *C. gran-*



FIGURE 1. Digital photograph of *Carabus granulatus* Linnaeus, dorsal aspect, adult male from Chinukundl Creek, Graham Island, Haida Gwaii, British Columbia, Canada; scale line = 2.0 mm. Photo by Victor G. Smith, California Academy of Sciences.

ulatus under boards, cut logs, and stones at various locations around homes and gardens in the Miller Creek subdivision, where I was lodging, just north of the Chinukundl Creek site.

Through discussions with several residents of the subdivision, I learned that this species was well known to them and frequently encountered by them in the course of their routine gardening and yard work activities. *Carabus granulatus* appears to be well established now, at least in this part of Graham Island. Just when this species first arrived on Graham Island is unclear; but I never encountered it during my extensive fieldwork there in the 1980s or in my study of all known specimens from the archipelago in North American collections at that time or since. I suggest that its arrival dates to no earlier than 1986 and probably later than that, and that the nearest and most likely source area for the introduction is the southern British Columbia mainland.

Carabus granulatus represents the third known carabid beetle species native to western Europe that has been introduced into the Haida Gwaii. The other two species are *Carabus nemoralis* Müller and *Trechus obtusus* Erichson (Kavanaugh 1992). Like these species, which also are associated with synanthropic sites, *C. granulatus* can be expected to expand its range on Graham Island in the future, and perhaps also to expand to other islands of the archipelago, with habitat alteration and the spread of human activities.

ACKNOWLEDGMENTS

I thank Dr. Carita Bergman, Terrestrial Ecologist with the Gwaii Haanas National Park Reserve and Haida Heritage Site, for her extraordinary assistance prior to and throughout the course of my fieldwork in the Haida Gwaii in 2009, and particularly for providing me with the lodging at Miller Creek, which directly facilitated the discovery reported here.

REFERENCES

- HATCH, M.H. 1933. Notes on Carabidae. *The Pan-Pacific Entomologist* 9:117-121.
- KAVANAUGH, D.H. 1992. *Carabid beetles (Coleoptera: Carabidae) of the Queen Charlotte Islands, British Columbia*. Memoirs of the California Academy of Sciences, no. 16. vii + 113 pp.
- LINDROTH, C.H. 1957. *The Faunal Connections Between Europe and North America*. John Wiley & Sons, New York, New York, USA. 344 pp.
- LINDROTH, C.H. 1961. *The Ground-beetles of Canada and Alaska*, pt. 2. *Opuscula Entomologica*, Suppl. 20. 200 pp.
- LINNAEUS, C. 1758. *Systema naturae per regna tria naturae, secundum classes, ordines, genera, species, cum characteribus, differentiis, synonymis, locis*. Edition decimal, reformata. Tomus I. Laurentii Salvii, Holmiae (Stockholm), Sweden. 823 pp.